APPENDIX 10B

HEALTH RISK ASSESSMENT METHODOLOGY

APPENDIX 10B

Health Risk Assessment Methodology

A health-risk assessment was prepared to estimate diesel exhaust risk at two residential areas adjacent to Richmond Parkway where additional diesel truck traffic from the project and cumulative traffic increases would pass near existing homes. These locations were the northeast corner of the intersection of Richmond Parkway and Gertrude Avenue and along the west side of Richmond Parkway both south and north of its intersection with Hilltop Drive. These locations represent the worst-case exposure to new diesel particulate from project and cumulative traffic increases.

The health risk assessment utilized estimated new daily heavy-duty diesel truck trip volumes in 2015. The EMFAC-2002 emissions model was used to predict emission rates from traveling heavy-duty diesel trucks in the year 20015. Two separate models were constructed.

The model used in this assessment was the U.S. EPA-approved guideline model, Industrial Source Complex for Short-Term Impacts (ISCST-3).[1] At the Richmond Parkway/Gertrude Avenue intersection a single receptor was utilized, located at the closest corner of what is the closest residential building. Near Hilltop Drive a series of eight receptors were located along the western edge of the Richmond Parkway right-of-way. The location of receptors is shown in Figures 1 and 2. The ISCST-3 model was run using a meteorological file from a monitoring site at the Chevron refinery that was provided by the Bay Area Air Quality Management District. Model output is attached.

The maximum annual concentration obtained from each model was used in the calculation of cancer risk. The methodology for the analysis followed the guidelines developed for the preparation of health risk assessments required under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Health and Safety Code Section 44360 et seq.) and guidance provided by the Bay Area Air Quality Management District.

The Unit Risk Value for diesel exhaust particulate recommended by the California Office of Environmental Health Hazard Assessment (OEHHA) is 3.0×10^{-04} per microgram per cubic meter (ug/m^3). This means that for receptors with an annual average concentration of 1 ug/m^3 in the ambient air, the probability of contracting cancer over a 70-year life span is 300 in one million (300×10^{-06}). The Unit Risk Value assumes that a person is exposed continuously for 70 years. Tables 1 and 2 below show the results of the risk screening calculation.

Calculated risk is below the BAAQMD significance threshold of 10 in one million. The Annual Average Concentration is also well below the chronic inhalation Reference

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[1]U. S. Environmental Protection Agency, User's Guide for the Industrial Source Complex (ISC3) Dispersion Models, Report EPA-454/b-95-003a, September 1995.

Exposure Level (REL) for diesel exhaust particulate of 5 ug/m^3. The REL is the concentration at or below which no adverse non-cancer health effects are anticipated. These results support a conclusion that impacts related to diesel exhausts would be less than significant.

Table 1: Calculated Excess Carcinogenic Risk from Proposed Project Truck Traffic

Location	**Annual Average Concentration (ug/m^3)**	**Unit Risk Factor**	**Calculated Risk**
Richmond Parkway/ Gertrude Avenue	0.00418	$3.0x10^{-4}$	$1.25x10^{-6}$
Richmond Parkway/ Hilltop Drive	0.00541	$3.0x10^{-4}$	$1.62x10^{-6}$

Table 2: Calculated Excess Carcinogenic Risk from Cumulative Truck Traffic

Location	**Annual Average Concentration (ug/m^3)**	**Unit Risk Factor**	**Calculated Risk**
Richmond Parkway/ Gertrude Avenue	0.0141	$3.0x10^{-4}$	$4.23x10^{-6}$
Richmond Parkway/ Hilltop Drive	0.0167	$3.0x10^{-4}$	$5.02x10^{-6}$

```
CO STARTING
CO TITLEONE WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND PARKWAY/GERTRUDE

CO MODELOPT CONC URBAN DFAULT


CO AVERTIME  PERIOD


CO POLLUTID OTHER
CO FLAGPOLE 1.5
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO LOCATION NB1  AREA   65.2   -228.9
SO LOCATION NB2  AREA   33.9   -155.3
SO LOCATION NB3  AREA   13.9    -78.4
SO LOCATION NB4  AREA      2        0
SO LOCATION NB5  AREA      2     80.0
SO LOCATION NB6  AREA      2    160.0
SO LOCATION SB1  AREA    -10    160.0
SO LOCATION SB2  AREA    -10     80.0
SO LOCATION SB3  AREA    -10        0
SO LOCATION SB4  AREA    3.9    -78.4
SO LOCATION SB5  AREA   23.9   -155.5
SO LOCATION SB6  AREA   55.2   -228.9


SO SRCPARAM NB1  0.00000000947 4.15 8.0 80.0 -23  1.39
SO SRCPARAM NB2  0.00000000947 4.15 8.0 80.0 -16  1.39
SO SRCPARAM NB3  0.00000000947 4.15 8.0 80.0 -10  1.39
SO SRCPARAM NB4  0.00000000947 4.15 8.0 80.0   0   1.39
SO SRCPARAM NB5  0.00000000947 4.15 8.0 80.0   0   1.39
SO SRCPARAM NB6  0.00000000947 4.15 8.0 80.0   0   1.39
SO SRCPARAM SB1  0.00000000947 4.15 8.0 80.0   0   1.39
SO SRCPARAM SB2  0.00000000947 4.15 8.0 80.0   0   1.39
SO SRCPARAM SB3  0.00000000947 4.15 8.0 80.0   0   1.39
SO SRCPARAM SB4  0.00000000947 4.15 8.0 80.0 -10  1.39
SO SRCPARAM SB5  0.00000000947 4.15 8.0 80.0 -16  1.39
SO SRCPARAM SB6  0.00000000947 4.15 8.0 80.0 -23  1.39

SO SRCGROUP ALL
SO FINISHED
RE STARTING


RE DISCCART  20 12  0




RE FINISHED

ME STARTING
ME INPUTFIL CHV02600.asc
ME ANEMHGHT 10 METERS

ME SURFDATA 2703  2002
ME UAIRDATA 2703  2002

ME FINISHED
OU STARTING
```

OU RECTABLE ALLAVE FIRST

OU FINISHED

```
**********************************
*** SETUP Finishes Successfully ***
**********************************
```

```
 *** ISCST3 - VERSION 00101 ***    *** WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND
PARKWAY/GERTRUDE       ***        09/17/03
                                  ***
***        11:22:52
**MODELOPTs:
PAGE    1
CONC                          URBAN  FLAT   FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.
          8. "Upper Bound" Values for Supersquat Buildings.
          9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates PERIOD Averages Only

**This Run Includes:    12 Source(s);      1 Source Group(s); and       1 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle
=     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission
Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          richmnd1.txt
**Output Print File:             richmnd1.out
```

CONC URBAN FLAT FLGPOL DFAULT

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2) SCALAR VARY BY	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)
NB1	0	0.94700E-08	65.2	-228.9	0.0	4.15	8.00	80.00	-23.00	1.39
NB2	0	0.94700E-08	33.9	-155.3	0.0	4.15	8.00	80.00	-16.00	1.39
NB3	0	0.94700E-08	13.9	-78.4	0.0	4.15	8.00	80.00	-10.00	1.39
NB4	0	0.94700E-08	2.0	0.0	0.0	4.15	8.00	80.00	0.00	1.39
NB5	0	0.94700E-08	2.0	80.0	0.0	4.15	8.00	80.00	0.00	1.39
NB6	0	0.94700E-08	2.0	160.0	0.0	4.15	8.00	80.00	0.00	1.39
SB1	0	0.94700E-08	-10.0	160.0	0.0	4.15	8.00	80.00	0.00	1.39
SB2	0	0.94700E-08	-10.0	80.0	0.0	4.15	8.00	80.00	0.00	1.39
SB3	0	0.94700E-08	-10.0	0.0	0.0	4.15	8.00	80.00	0.00	1.39
SB4	0	0.94700E-08	3.9	-78.4	0.0	4.15	8.00	80.00	-10.00	1.39
SB5	0	0.94700E-08	23.9	-155.5	0.0	4.15	8.00	80.00	-16.00	1.39
SB6	0	0.94700E-08	55.2	-228.9	0.0	4.15	8.00	80.00	-23.00	1.39

CONC URBAN FLAT FLGPOL DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

ALL NB1 , NB2 , NB3 , NB4 , NB5 , NB6 , SB1 , SB2 , SB3 , SB4 , SB5 , SB6 ,

CONC URBAN FLAT FLGPOL DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(20.0, 12.0, 0.0, 0.0);

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***

(1=YES; 0=NO)

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6

	A	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	B	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	C	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	D	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	E	.20000E-01	.20000E-01	.20000E-01	.20000E-01
.20000E-01	.20000E-01				
	F	.35000E-01	.35000E-01	.35000E-01	.35000E-01
.35000E-01	.35000E-01				

CONC URBAN FLAT FLGPOL DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: CHV02600.asc
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 2703 UPPER AIR STATION NO.: 2703
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 2002 YEAR: 2002

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
10	01	01	01	262.6	2.77	285.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	02	246.9	1.97	285.9	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	03	246.5	3.40	285.9	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	04	242.7	2.91	285.9	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	05	246.5	3.22	285.8	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	06	249.4	2.68	285.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	07	212.4	1.21	285.3	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	08	241.0	1.39	285.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	09	239.7	1.52	285.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	10	277.0	1.03	285.8	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	11	318.0	2.28	286.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	12	355.7	1.97	286.5	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	13	8.2	1.74	286.5	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	14	339.6	2.46	286.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	15	323.7	2.15	286.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	16	331.5	3.17	287.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	17	331.4	4.29	288.0	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	18	333.7	5.77	288.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	19	335.9	5.10	288.0	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	20	339.7	4.69	288.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	21	347.3	4.07	287.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	22	344.4	5.41	288.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00

Exposure Level (REL) for diesel exhaust particulate of 5 ug/m^3. The REL is the concentration at or below which no adverse non-cancer health effects are anticipated. These results support a conclusion that impacts related to diesel exhausts would be less than significant.

Table 1: Calculated Excess Carcinogenic Risk from Proposed Project Truck Traffic

Location	**Annual Average Concentration (ug/m^3)**	**Unit Risk Factor**	**Calculated Risk**
Richmond Parkway/ Gertrude Avenue	0.00418	$3.0x10^{-4}$	$1.25x10^{-6}$
Richmond Parkway/ Hilltop Drive	0.00541	$3.0x10^{-4}$	$1.62x10^{-6}$

Table 2: Calculated Excess Carcinogenic Risk from Cumulative Truck Traffic

Location	**Annual Average Concentration (ug/m^3)**	**Unit Risk Factor**	**Calculated Risk**
Richmond Parkway/ Gertrude Avenue	0.0141	$3.0x10^{-4}$	$4.23x10^{-6}$
Richmond Parkway/ Hilltop Drive	0.0167	$3.0x10^{-4}$	$5.02x10^{-6}$

```
CO STARTING
CO TITLEONE WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND PARKWAY/GERTRUDE

CO MODELOPT CONC URBAN DFAULT


CO AVERTIME  PERIOD


CO POLLUTID OTHER
CO FLAGPOLE 1.5
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO LOCATION NB1  AREA   65.2   -228.9
SO LOCATION NB2  AREA   33.9   -155.3
SO LOCATION NB3  AREA   13.9    -78.4
SO LOCATION NB4  AREA      2        0
SO LOCATION NB5  AREA      2     80.0
SO LOCATION NB6  AREA      2    160.0
SO LOCATION SB1  AREA    -10    160.0
SO LOCATION SB2  AREA    -10     80.0
SO LOCATION SB3  AREA    -10        0
SO LOCATION SB4  AREA    3.9    -78.4
SO LOCATION SB5  AREA   23.9   -155.5
SO LOCATION SB6  AREA   55.2   -228.9


SO SRCPARAM NB1  0.00000000947 4.15 8.0 80.0 -23  1.39
SO SRCPARAM NB2  0.00000000947 4.15 8.0 80.0 -16  1.39
SO SRCPARAM NB3  0.00000000947 4.15 8.0 80.0 -10  1.39
SO SRCPARAM NB4  0.00000000947 4.15 8.0 80.0  0   1.39
SO SRCPARAM NB5  0.00000000947 4.15 8.0 80.0  0   1.39
SO SRCPARAM NB6  0.00000000947 4.15 8.0 80.0  0   1.39
SO SRCPARAM SB1  0.00000000947 4.15 8.0 80.0  0   1.39
SO SRCPARAM SB2  0.00000000947 4.15 8.0 80.0  0   1.39
SO SRCPARAM SB3  0.00000000947 4.15 8.0 80.0  0   1.39
SO SRCPARAM SB4  0.00000000947 4.15 8.0 80.0 -10  1.39
SO SRCPARAM SB5  0.00000000947 4.15 8.0 80.0 -16  1.39
SO SRCPARAM SB6  0.00000000947 4.15 8.0 80.0 -23  1.39

SO SRCGROUP ALL
SO FINISHED
RE STARTING


RE DISCCART  20 12  0




RE FINISHED

ME STARTING
ME INPUTFIL CHV02600.asc
ME ANEMHGHT 10 METERS

ME SURFDATA 2703  2002
ME UAIRDATA 2703  2002

ME FINISHED
OU STARTING
```

OU RECTABLE ALLAVE FIRST

OU FINISHED

```
**********************************
*** SETUP Finishes Successfully ***
**********************************
```

```
 *** ISCST3 - VERSION 00101 ***    *** WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND
PARKWAY/GERTRUDE       ***        09/17/03
                                  ***
***        11:22:52
**MODELOPTs:
PAGE   1
CONC                          URBAN  FLAT   FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.
          8. "Upper Bound" Values for Supersquat Buildings.
          9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates PERIOD Averages Only

**This Run Includes:    12 Source(s);      1 Source Group(s); and       1 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle
=     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission
Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          richmnd1.txt
**Output Print File:             richmnd1.out
```

CONC URBAN FLAT FLGPOL DFAULT

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
NB1	0	0.94700E-08	65.2	-228.9	0.0	4.15	8.00	80.00	-23.00	1.39	
NB2	0	0.94700E-08	33.9	-155.3	0.0	4.15	8.00	80.00	-16.00	1.39	
NB3	0	0.94700E-08	13.9	-78.4	0.0	4.15	8.00	80.00	-10.00	1.39	
NB4	0	0.94700E-08	2.0	0.0	0.0	4.15	8.00	80.00	0.00	1.39	
NB5	0	0.94700E-08	2.0	80.0	0.0	4.15	8.00	80.00	0.00	1.39	
NB6	0	0.94700E-08	2.0	160.0	0.0	4.15	8.00	80.00	0.00	1.39	
SB1	0	0.94700E-08	-10.0	160.0	0.0	4.15	8.00	80.00	0.00	1.39	
SB2	0	0.94700E-08	-10.0	80.0	0.0	4.15	8.00	80.00	0.00	1.39	
SB3	0	0.94700E-08	-10.0	0.0	0.0	4.15	8.00	80.00	0.00	1.39	
SB4	0	0.94700E-08	3.9	-78.4	0.0	4.15	8.00	80.00	-10.00	1.39	
SB5	0	0.94700E-08	23.9	-155.5	0.0	4.15	8.00	80.00	-16.00	1.39	
SB6	0	0.94700E-08	55.2	-228.9	0.0	4.15	8.00	80.00	-23.00	1.39	

CONC URBAN FLAT FLGPOL DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

ALL NB1 , NB2 , NB3 , NB4 , NB5 , NB6 , SB1 , SB2 , SB3 , SB4 , SB5 , SB6 ,

**MODELOPTs:
PAGE 4
CONC URBAN FLAT FLGPOL DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(20.0, 12.0, 0.0, 0.0);

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***

(1=YES; 0=NO)

```
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1
1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54,   3.09,   5.14,   8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6

	A	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	B	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	C	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	D	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	E	.20000E-01	.20000E-01	.20000E-01	.20000E-01
.20000E-01	.20000E-01				
	F	.35000E-01	.35000E-01	.35000E-01	.35000E-01
.35000E-01	.35000E-01				

CONC URBAN FLAT FLGPOL DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: CHV02600.asc
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 2703 UPPER AIR STATION NO.: 2703
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 2002 YEAR: 2002

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
10	01	01	01	262.6	2.77	285.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	02	246.9	1.97	285.9	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	03	246.5	3.40	285.9	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	04	242.7	2.91	285.9	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	05	246.5	3.22	285.8	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	06	249.4	2.68	285.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	07	212.4	1.21	285.3	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	08	241.0	1.39	285.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	09	239.7	1.52	285.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	10	277.0	1.03	285.8	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	11	318.0	2.28	286.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	12	355.7	1.97	286.5	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	13	8.2	1.74	286.5	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	14	339.6	2.46	286.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	15	323.7	2.15	286.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	16	331.5	3.17	287.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	17	331.4	4.29	288.0	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	18	333.7	5.77	288.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	19	335.9	5.10	288.0	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	20	339.7	4.69	288.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	21	347.3	4.07	287.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	22	344.4	5.41	288.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00

10 01 01 23	358.2	5.28	287.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10 01 01 24	3.3	4.92	286.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

CONC URBAN FLAT FLGPOL DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): NB1 , NB2 , NB3 , NB4 , NB5 , NB6 , SB1 , SB2 , SB3 , SB4 , SB5 , SB6 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
20.00	12.00	0.00418			

CONC URBAN FLAT FLGPOL DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3
**

NETWORK GROUP ID OF TYPE	GRID-ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)
ALL	1ST HIGHEST VALUE IS	0.00418 AT (	20.00, 12.00, 0.00, 0.00)
DC	NA		
	2ND HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	3RD HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	4TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	5TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	6TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	7TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	8TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	9TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)
	10TH HIGHEST VALUE IS	0.00000 AT (	0.00, 0.00, 0.00, 0.00)

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

```
 *** ISCST3 - VERSION 00101 ***     *** WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND
PARKWAY/GERTRUDE        ***         09/17/03
                                     ***
***         11:22:52
**MODELOPTs:
PAGE    9
CONC                            URBAN  FLAT   FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of              0 Fatal Error Message(s)
A Total of              0 Warning Message(s)
A Total of              9 Informational Message(s)

A Total of              9 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


   ********   WARNING MESSAGES   ********
               ***  NONE  ***


   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
CO STARTING
CO TITLEONE WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND PARKWAY/HILLTOP

CO MODELOPT CONC URBAN DFAULT


CO AVERTIME PERIOD


CO POLLUTID OTHER
CO FLAGPOLE 1.5
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO LOCATION NB1  AREA   -97.3  -386.5
SO LOCATION NB2  AREA   -76.6  -309.2
SO LOCATION NB3  AREA   -55.9  -231.9
SO LOCATION NB4  AREA   -35.2  -154.6
SO LOCATION NB5  AREA   -14.5   -77.3
SO LOCATION NB6  AREA     6.2       0
SO LOCATION NB7  AREA    26.9    77.3
SO LOCATION NB8  AREA    47.6    154.6
SO LOCATION NB9  AREA    68.3    231.9
SO LOCATION NB10 AREA    89.0    309.2
SO LOCATION SB1  AREA    67.9    309.2
SO LOCATION SB2  AREA    47.2    231.9
SO LOCATION SB3  AREA    26.5    154.6
SO LOCATION SB4  AREA     5.8     77.3
SO LOCATION SB5  AREA   -14.9       0
SO LOCATION SB6  AREA   -35.6    -77.3
SO LOCATION SB7  AREA   -56.3    -154.6
SO LOCATION SB8  AREA   -77.0    -231.0
SO LOCATION SB9  AREA   -99.7    -309.2
SO LOCATION SB10  AREA  -120.4   -386.5

SO SRCPARAM NB1  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB2  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB3  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB4  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB5  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB6  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB7  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB8  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB9  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM NB10  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB1  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB2  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB3  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB4  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB5  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB6  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB7  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB8  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB9  0.00000000917 4.15 8.0 80.0 15  1.39
SO SRCPARAM SB10  0.00000000917 4.15 8.0 80.0 15  1.39

SO SRCGROUP ALL
SO FINISHED
RE STARTING


RE DISCCART  -129.5 -152.4  0
```

```
 RE DISCCART   -94.5  -94.5  0
 RE DISCCART   -68.6  -48.8  0
 RE DISCCART   -61.0  -15.2  0
 RE DISCCART   -35.0   68.6  0
 RE DISCCART       0  109.8  0
 RE DISCCART    25.9  149.4  0
 RE DISCCART    48.8  192.0  0

 RE FINISHED

 ME STARTING
 ME INPUTFIL CHV02600.asc
 ME ANEMHGHT 10 METERS

 ME SURFDATA 2703  2002
 ME UAIRDATA 2703  2002

 ME FINISHED
 OU STARTING
 OU RECTABLE ALLAVE FIRST



OU FINISHED

**********************************
*** SETUP Finishes Successfully ***
**********************************
```

```
 *** ISCST3 - VERSION 00101 ***    *** WCCSL/CUMULATIVE DIESEL PARTICULATE- RICHMOND
PARKWAY/HILLTOP        ***        09/17/03
                                   ***
***        11:15:24
**MODELOPTs:
PAGE   1
CONC                          URBAN  FLAT   FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates PERIOD Averages Only

**This Run Includes:    20 Source(s);      1 Source Group(s); and       8 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and
Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle
=     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission
Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          richmnd2.txt
**Output Print File:             richmnd2.out
```

CONC URBAN FLAT FLGPOL DFAULT

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2) SCALAR VARY BY	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)
NB1	0	0.91700E-08	-97.3	-386.5	0.0	4.15	8.00	80.00	15.00	1.39
NB2	0	0.91700E-08	-76.6	-309.2	0.0	4.15	8.00	80.00	15.00	1.39
NB3	0	0.91700E-08	-55.9	-231.9	0.0	4.15	8.00	80.00	15.00	1.39
NB4	0	0.91700E-08	-35.2	-154.6	0.0	4.15	8.00	80.00	15.00	1.39
NB5	0	0.91700E-08	-14.5	-77.3	0.0	4.15	8.00	80.00	15.00	1.39
NB6	0	0.91700E-08	6.2	0.0	0.0	4.15	8.00	80.00	15.00	1.39
NB7	0	0.91700E-08	26.9	77.3	0.0	4.15	8.00	80.00	15.00	1.39
NB8	0	0.91700E-08	47.6	154.6	0.0	4.15	8.00	80.00	15.00	1.39
NB9	0	0.91700E-08	68.3	231.9	0.0	4.15	8.00	80.00	15.00	1.39
NB10	0	0.91700E-08	89.0	309.2	0.0	4.15	8.00	80.00	15.00	1.39
SB1	0	0.91700E-08	67.9	309.2	0.0	4.15	8.00	80.00	15.00	1.39
SB2	0	0.91700E-08	47.2	231.9	0.0	4.15	8.00	80.00	15.00	1.39
SB3	0	0.91700E-08	26.5	154.6	0.0	4.15	8.00	80.00	15.00	1.39
SB4	0	0.91700E-08	5.8	77.3	0.0	4.15	8.00	80.00	15.00	1.39
SB5	0	0.91700E-08	-14.9	0.0	0.0	4.15	8.00	80.00	15.00	1.39
SB6	0	0.91700E-08	-35.6	-77.3	0.0	4.15	8.00	80.00	15.00	1.39
SB7	0	0.91700E-08	-56.3	-154.6	0.0	4.15	8.00	80.00	15.00	1.39
SB8	0	0.91700E-08	-77.0	-231.0	0.0	4.15	8.00	80.00	15.00	1.39
SB9	0	0.91700E-08	-99.7	-309.2	0.0	4.15	8.00	80.00	15.00	1.39
SB10	0	0.91700E-08	-120.4	-386.5	0.0	4.15	8.00	80.00	15.00	1.39

CONC URBAN FLAT FLGPOL DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

ALL NB1 , NB2 , NB3 , NB4 , NB5 , NB6 , NB7 , NB8 , NB9 , NB10 , SB1 , SB2 ,
SB3 , SB4 , SB5 , SB6 , SB7 , SB8 , SB9 , SB10 ,

**MODELOPTs:
PAGE 4
CONC URBAN FLAT FLGPOL DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(-129.5, -152.4, 0.0, 0.0); (-94.5, -94.5, 0.0, 0.0);
(-68.6, -48.8, 0.0, 0.0); (-61.0, -15.2, 0.0, 0.0);
(-35.0, 68.6, 0.0, 0.0); (0.0, 109.8, 0.0, 0.0);
(25.9, 149.4, 0.0, 0.0); (48.8, 192.0, 0.0, 0.0);

CONC   URBAN FLAT FLGPOL DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***

(1=YES; 0=NO)

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6

	A	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	B	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	C	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	D	.00000E+00	.00000E+00	.00000E+00	.00000E+00
.00000E+00	.00000E+00				
	E	.20000E-01	.20000E-01	.20000E-01	.20000E-01
.20000E-01	.20000E-01				
	F	.35000E-01	.35000E-01	.35000E-01	.35000E-01
.35000E-01	.35000E-01				

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*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: CHV02600.asc
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 2703 UPPER AIR STATION NO.: 2703
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 2002 YEAR: 2002

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
10	01	01	01	262.6	2.77	285.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	02	246.9	1.97	285.9	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	03	246.5	3.40	285.9	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	04	242.7	2.91	285.9	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	05	246.5	3.22	285.8	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	06	249.4	2.68	285.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	07	212.4	1.21	285.3	5	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	08	241.0	1.39	285.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	09	239.7	1.52	285.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	10	277.0	1.03	285.8	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	11	318.0	2.28	286.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	12	355.7	1.97	286.5	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	13	8.2	1.74	286.5	3	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	14	339.6	2.46	286.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	15	323.7	2.15	286.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	16	331.5	3.17	287.5	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	17	331.4	4.29	288.0	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	18	333.7	5.77	288.3	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	19	335.9	5.10	288.0	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	20	339.7	4.69	288.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	21	347.3	4.07	287.8	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00
10	01	01	22	344.4	5.41	288.1	4	600.0	600.0	0.0000	0.0	0.0000	0	0.00

10 01 01 23	358.2	5.28	287.3	4	600.0	600.0	0.0000	0.0	0.0000	0
0.00										
10 01 01 24	3.3	4.92	286.8	4	600.0	600.0	0.0000	0.0	0.0000	0
0.00										

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

CONC URBAN FLAT FLGPOL DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): NB1 , NB2 , NB3 , NB4 , NB5 , NB6 , NB7 , NB8 , NB9 , NB10 , SB1 , SB2 , SB3 , SB4 , SB5 , SB6 , SB7 , SB8 , SB9 , SB10 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
-129.50	-152.40	0.00192	-94.50	-94.50	0.00255
-68.60	-48.80	0.00311	-61.00	-15.20	0.00306
-35.00	68.60	0.00323	0.00	109.80	0.00461
25.90	149.40	0.00541	48.80	192.00	0.00517

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*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3
**

NETWORK GROUP ID OF TYPE	GRID-ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)
ALL	1ST HIGHEST VALUE IS	0.00541 AT (25.90, 149.40, 0.00, 0.00)	DC NA
	2ND HIGHEST VALUE IS	0.00517 AT (48.80, 192.00, 0.00, 0.00)	DC NA
	3RD HIGHEST VALUE IS	0.00461 AT (0.00, 109.80, 0.00, 0.00)	DC NA
	4TH HIGHEST VALUE IS	0.00323 AT (-35.00, 68.60, 0.00, 0.00)	DC NA
	5TH HIGHEST VALUE IS	0.00311 AT (-68.60, -48.80, 0.00, 0.00)	DC NA
	6TH HIGHEST VALUE IS	0.00306 AT (-61.00, -15.20, 0.00, 0.00)	DC NA
	7TH HIGHEST VALUE IS	0.00255 AT (-94.50, -94.50, 0.00, 0.00)	DC NA
	8TH HIGHEST VALUE IS	0.00192 AT (-129.50, -152.40, 0.00, 0.00)	DC NA
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)	
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

CONC URBAN FLAT FLGPOL DFAULT

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 9 Informational Message(s)

A Total of 9 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST3 Finishes Successfully ***
****